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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,862

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Petrus A Van Nijnatten

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NIXON & VANDERHYE, PC  
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EXAMINER

GUGLIOTTA, NICOLE T

ART UNIT

PAPER NUMBER

1794

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/563,862	<b>Applicant(s)</b> VAN NIJNATTEN, PETRUS A	
	<b>Examiner</b> NICOLE T. GUGLIOTTA	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1, 3 - 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3 - 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Examiner's Note***

Examiner acknowledges the amendment made to claim 1 and confirms no new matter has been added. Examiner notes claim 19 was not previously rejected under Nelson & Buhay et al. Therefore, this rejection is non-final.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**1. Claims 1 - 6, 8 – 12, 18 & 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson (U.S. Patent No. 6,125,598), in view of Buhay et al. (US 2004/0106017 A1).**

In regard to claims 1 & 18, Nelson discloses a glass laminate utilized for vehicle windows (Col. 3, Line 21) comprising alternating layers of silicon dioxide and fluorine doped in tin oxide (Col. 5, Lines 24 - 46). Nelson et al. disclose each of the coatings have a thickness of 700 – 1500 Angstroms (70 – 150 nm). Buhay et al., however, teach a laminate for reducing heat build-up in the interior of a vehicle by providing a laminated windshield having two glass plies with an infrared (IR) or ultraviolet (UV) attenuating solar control coating between the plies (¶ [0001]). This solar control coating stack

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comprises a protective coating (non-conductive coating) (§ [0010]). Increasing the thickness of the protective layer (non-conductive layer) increases the emissivity value, which improves the heating and cooling characteristics of the plies (§ [0034]). Buhay et al. disclose their protective coating to specifically be in the range of 500 Angstroms to 50,000 Angstroms (50 nm to 5000 nm) (§ [0036]). In addition, Buhay et al. disclose the solar energy reflectance of the coating (light radiation emitted by the surface) is electromagnetic energy in the range of 700 nm to 2100 nm (§ [0061]). For claims 3 - 5, discussed below, the total thickness of the coating combination of Nelson and Buhay et al. would be approximately 1150 nm. Therefore the total thickness of the coating, 1150 nm, is less than the light radiation of 2100 nm emitted (reflected) by the surface.

It would have been obvious to one of ordinary skill in the art at the time of the invention to increase the thickness of the non-conductive layer to a range of 50 – 5,000 nm in order to increase the emissivity, and therefore, decrease the heat build-up in the interior of a vehicle.

In regard to claims 3 – 5, Nelson discloses their conductive layer gave a thickness range of 700 – 1500 Angstroms (70 – 150 nm) (Col. 4, Lines 63 – 67). Buhay et al. disclose a protective coating have a thickness of 50 nm to 5000 nm (§ [0036]). Therefore, a laminate structure of 2 non-conductive coatings, each with a thickness of 500 nm, and one conductive coating of at most 150 nm in thickness would have a total thickness of 1150 nm (1.15 micrometers).

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In regard to claim 6, 8, and 9, Nelson disclose an electrically conductive layer of fluorine doped tin oxide (Col. 5, Line 44) and Buhay et al. disclose a functional (conductive) layer of a metallic nitride (¶ [0031]) and/or a reflective metal such as gold, copper, or silver, and may further comprise a primer film, such as titanium (¶ [0032]).

In regard to claim 10, Nelson discloses a thin film stack of transparent thin film coatings (Col. 3, Lines 6 – 8).

In regard to claims 11 & 12, Nelson discloses the non-conductive layer is silicon dioxide (Col. 4, Line 23). Buhay et al. also disclose their protective layer (non-conductive) can be silicon oxide (¶ [0037]).

In regard to claim 19, Nelson discloses the first layer may be a titanium dioxide layer, which is a non-conductive material.

**2. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson and Buhay et al., as in claim 1, and further in view of Woodward et al. (US 2001/0021540 A1).**

Nelson and Buhay et al. are silent in regard to the presence of chrome, nickel or rhodium in the conductive layer. Woodward et al., however, disclose chrome and nickel are traditionally known for reducing glare for solar control coatings applied to windows of vehicles or buildings (¶ [0007]). Solar control coatings provide solar screening to the

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interior of vehicles, homes or buildings (§ [0038]). Woodward et al. also teach chromium and/or nickel also make good primers, which is applied to the conductive layer of titanium nitride to improve adherence between the titanium nitride and the adhesive layer or substrate (§ [0035]). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the limitation of nickel or chrome in the coating taught by the combination of Nelson and Bujay et al. because Woodward et al. suggest the presence of nickel and/or chrome reduces glare and improves adherence between the conductive layer and the adjacent layer (i.e. substrate or adhesive).

**3. Claims 13 & 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson and Buhay et al., as in claim 1, and further in view of Wakelyn (U.S. Patent No. 3,395,053).**

The combination of Nelson and Buhay et al. teach an emission enhancing coating which prevents heat build-up in the interior of vehicles. Nelson and Buhay et al. are silent in regard to the application of their coating to a metal foil substrate. Wakelyn teaches the application of thermal control coatings with high emission properties to aluminum foil surfaces with low emissivity surfaces. These coatings applied to the aluminum foil exteriors of space vehicles (i.e. satellite structures) control the temperature needed for minimum operations (Col. 2, Lines 1 – 26). It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the emission enhancing coating disclosed by the combination of Nelson and Buhay et al. to

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the aluminum foil surface of a satellite or other space vehicle in order to regulate the temperature of the vehicle.

**4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson and Buhay et al., as in claim 1, and further in view of Rancourt et al. (U.S. Patent No. 4,735,488).**

The combination of Nelson and Buhay et al. teach an emission enhancing coating which prevents heat build-up in the interior of vehicles. Nelson and Buhay et al. are silent in regard to the application of their coating to a solar cell substrate. Rancourt et al. disclose the desire for a high emission coating applied to solar cells to overcome overheating problems (Col. 1, Lines 10 – 15). It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the emission coating disclosed by the combination of Nelson and Buhay et al. to solar cells in order to overcome the problems of solar cells which may experience overheating, as disclosed by Rancourt et al.

#### ***Response to Arguments***

5. Applicants argue, "The rejection based on Boire et al. only applied to previous claims 1, 3 – 6, 8 – 14 and 17 – 19. By having combined previous claims 1 and 2, this objection is now rendered moot" (Remarks, Pg 5).

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6. EXAMINER'S RESPONSE: Applicant's arguments with respect to Boire et al. have been fully considered and are persuasive. The rejection of claims previously rejected under Boire et al. has been withdrawn.

7. Applicants argue, "...it is noted that Buhay et al explicitly teach away from the present invention by mentioning that increasing the emissivity of the functional coating improves the heating and cooling characteristics of the coated substrate during processing, but at the same time decreases thermal energy reflecting capability of the functional coating, such as reflectance of electromagnetic energy in the range of 5,000 to 23,000 nm (Buhay et al, page 6, paragraph 61). This is further supported by Buhay et al, page 7, paragraph 68. The present invention, on the other hand, it directed to a coating that has a high thermal emissivity" (Remarks, Pg 6).

EXAMINER'S RESPONSE: Applicant's arguments have been fully considered but they are not persuasive. First, Applicant fails to demonstrate how the prior art teaches away from their invention. Both the prior art (Buhay et al.) and Applicant's claimed invention seek to increase emissivity. In addition, both Buhay and Applicant share an overlapping range for the reflectance (radiation emitted by the surface) of electromagnetic energy.

Second, Applicant argues their invention is directed to a coating that has a high thermal emissivity. However, it is noted that the feature upon which applicant relies (i.e., high thermal emissivity) is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read



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into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICOLE T. GUGLIOTTA whose telephone number is (571)270-1552. The examiner can normally be reached on M - F 8:30 a.m. - 6 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/  
Supervisory Patent Examiner, Art Unit 1794

/NICOLE T GUGLIOTTA/  
Examiner, Art Unit 1794